

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

5       Claims 1-22 (canceled)

1     23. (Currently Amended) An integrated circuit structure formed at the surface of  
2       a substrate, comprising:

3       a plurality of shallow trenches formed in the surface of the substrate;

4       a nitrogen doped insulating liner grown on sidewalls of the shallow trenches  
5       by treating said sidewalls with an oxygen rich atmosphere followed with  
6       treating said sidewalls with a nitrogen compound;

7       a gap filling insulating material filling the shallow trenches level with the  
8       surface of the substrate ~~said gap filling insulating material being high~~  
9       temperature annealed to cause ~~said gap filling insulating material to~~  
10      become more dense; and

11      a plurality transistors formed in the surface of the substrate in regions  
12      between said shallow trenches, wherein each of said transistors include  
13      a source and a drain formed by diffusing an impurity species into the

14                   surface of said substrate, wherein said nitrogen doped insulating liner  
15                   acts as a stop to prevent said impurity species from diffusing into said  
16                   substrate from said gap filling insulating material.

1       24. (Previously Presented) The integrated circuit structure of claim 23 wherein  
2                   said nitrogen compound is selected from the group of nitrogen compounds  
3                   consisting of nitrogen (N<sub>2</sub>) gas, ammonia (NH<sub>3</sub>), nitric oxide (NO), and  
4                   nitrous oxide (N<sub>2</sub>O).

1       25. (Previously Presented) The integrated circuit structure of claim 23 wherein  
2                   the oxygen rich atmosphere is selected from the atmospheres consisting of  
3                   steam and oxygen gas.

1       26. (Previously Presented) The integrated circuit structure of claim 23 wherein  
2                   the treating of the sidewalls of the shallow trenches with the oxygen rich  
3                   atmosphere of the shallow trenches is at a temperature from  
4                   approximately 900° C to approximately 1000° C, at a pressure of from  
5                   approximately 600 Torr to approximately 760 Torr, for a period of time  
6                   from 60 minutes to 120 minutes.

1       27. (Previously Presented) The integrated circuit structure of claim 26 wherein  
2                   the treating the internal surfaces of the shallow trenches with the nitrogen  
3                   compounds is at a temperature of from approximately 900 °C to  
4                   approximately 1000 °C at a pressure of from approximately 600 Torr to

- 5                   approximately 760 Torr for a period of time of from approximately 30  
6                   minutes to approximately 90 minutes.
- 1       28. (Previously Presented) The integrated circuit structure of claim 24 wherein  
2                   the nitrogen doped insulating liner is formed by exposing the sidewalls of  
3                   said shallow trenches to a nitrogen rich and oxygen rich atmosphere  
4                   thermally to grow a silicon oxynitride layer on said sidewalls.
- 1       29. (Previously Presented) The integrated circuit structure of claim 28 wherein  
2                   the nitrogen rich and oxygen rich atmosphere is at a temperature of from  
3                   approximately 900 °C to approximately 1000 °C, and at a pressure of from  
4                   approximately 600 Torr to approximately 760 Torr for a period of from  
5                   approximately 120 minutes to approximately 180 minutes.
- 1       30. (Previously Presented) The integrated circuit structure of claim 28 wherein  
2                   the nitrogen rich and oxygen rich atmosphere includes nitrogen  
3                   compounds selected from the set of nitrogen compounds consisting of  
4                   nitrogen (N<sub>2</sub>) gas, ammonia (NH<sub>3</sub>), nitric oxide (NO), and nitrous oxide  
5                   (N<sub>2</sub>O) and oxygen rich compounds selected from the set of oxygen rich  
6                   compounds consisting of steam (H<sub>2</sub>O) and oxygen (O<sub>2</sub>).
- 1       31. (Previously Presented) The integrated circuit structure of claim 23 wherein  
2                   the nitrogen doped insulating liner has a thickness of from approximately  
3                   10 nanometers to approximately 30 nanometers.

- 1    32. (Previously Presented) The integrated circuit structure of claim 23 wherein
- 2                 the gap fill insulating material is selected from insulating materials
- 3                 consisting of CVD formed silicon oxide and spun-on-glass silicon dioxide.
  
- 1    33. (Previously Presented) The integrated circuit structure of claim 23 wherein
- 2                 the impurity species is boron.
  
- 1    34. (New) The integrated circuit structure of claim 23 wherein said gap filling
- 2                 insulating material is high temperature annealed to cause said gap filling
- 3                 insulating material to become more dense.